MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
LABORATORY SERVICES PROGRAM

Groundwater Investigation
West Lake Landfill, St. Louis County
September 30 through October 1, 1980

INTRODUCTION

A groundwater investigation was conducted in the vicinity of West Lake Landfill, located in Bridgeton, Missouri (St. Louis County). Two (2) monitoring wells on the landfill site and three (3) private wells located Northwest of the landfill were sampled. Sampling and field analyses were performed by Mike Lincoln of the Laboratory Services Program, Division of Environmental Quality.

METHODS

Three (3) of the monitoring wells were bailed until the volume of water in each well was replaced three (3) times one (1) day prior to sampling. Samples from these wells were collected with the aid of a bailer and immediately filtered to remove silt disturbed by the bailing procedure.

Two of the private wells sampled were equipped with electric pumps. The water in these wells was allowed to run for thirty (30) minutes immediately prior to sampling.

Samples were analyzed for pH, alkalinity and specific conductance at the sampling site. The remainder of the samples were appropriately preserved and delivered to the Divisional Laboratory located in Jefferson City, Missouri for further analysis.

Analyses were performed in accordance with procedures outlined in Standard Methods for the Examination of Water and Wastewater, EPA Methods for Chemical Analyses of Water and Wastes and/or ASTM Standard, Part 23, Water.

OBSERVATIONS

Only three (3) of the five (5) wells sampled could be measured for water depth. These include the two (2) landfill monitoring wells, #41 and #40, and the private well located on the property of Wilfred Hahn and Brothers. (A map attached to this report shows the location of the landfill and all wells sampled.) The wells serving Bob's Auto Parts and the Fox Fish Market were equipped with electric pumps so depth of water measurements could not be taken. The depth of the well at Fox Fish Market was given by the owner. An employee of Bob's Auto Parts estimated the depth of the well serving that facility at 15 - 30 feet. The well at Bob's Auto Parts was a

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REPORT OF SAMPLE ANALYSIS
LANDFILL MONITORING PROJECT

NAME OF FACILITY *West Lake Landfill*

SAMPLES COLLECTED BY *Mike Lincoln* DATE(S) *10-1-80*

NOTE:

SAMPLE DESCRIPTION	Well #41	Well #40	Hahn Farmhouse Well
DATE COLLECTED	10-1-80	10-1-80	10-1-80
SAMPLE NUMBER	80-7418	80-7419	80-7420
pH Units	6.3	6.7	6.7
Specific Cond. (umhos/cm @ 25° C)	4000	1450	1000
Milligrams per liter			
BOD	< 12	< 12	54
COD	19.6	25.8	90.9
NH_3 as N	0.31	0.09	0.15
NO_3+NO_2 as N	3.00	< 0.05	0.47
Total P	0.07	0.03	0.03
Total Sulfide	< 0.1	< 0.1	< 0.1
TOC	63.1	37.6	67.3
Total Cyanide	< 0.01	< 0.01	< 0.01
Non-Filterable Residue (SS)	126	162	300
Filterable Residue (TDS)	2744	839	496
Alkalinity as $CaCO_3$	690	500	360
Fluoride	0.17	0.19	0.61
Chloride	250	7.07	1.0
Sulfate	1100	177	44
Hardness as $CaCO_3$ (Ca, Mg, Fe, Zn, Mn)	1450	591	399
Potassium, *Dissolved*	12.3	7.6	6.9
Sodium, *Dissolved*	268	33.8	6.1
Calcium, *Dissolved*	429	166	122
Magnesium, *Dissolved*	93	43	23
Micrograms per liter			
Cadmium, *Dissolved*	7.2	0.6	0.1
Chromium, *Dissolved*	< 5	< 5	< 5
Copper, *Dissolved*	5	5	< 1
Iron, *Dissolved*, mg/l	2.08	2.82	3.13
Lead, *Dissolved*	4	3	2
Manganese, *Dissolved*	670	1310	770
Mercury, *Dissolved*	QNS*	QNS*	QNS*
Nickel, *Dissolved*	110	< 20	< 20
Zinc, *Dissolved*, mg/l	9.72	3.50	0.05
Arsenic, *Dissolved*	< 5	< 5	< 5
Silver, *Dissolved*	0.4	0.2	0.4

*Quantity not sufficient

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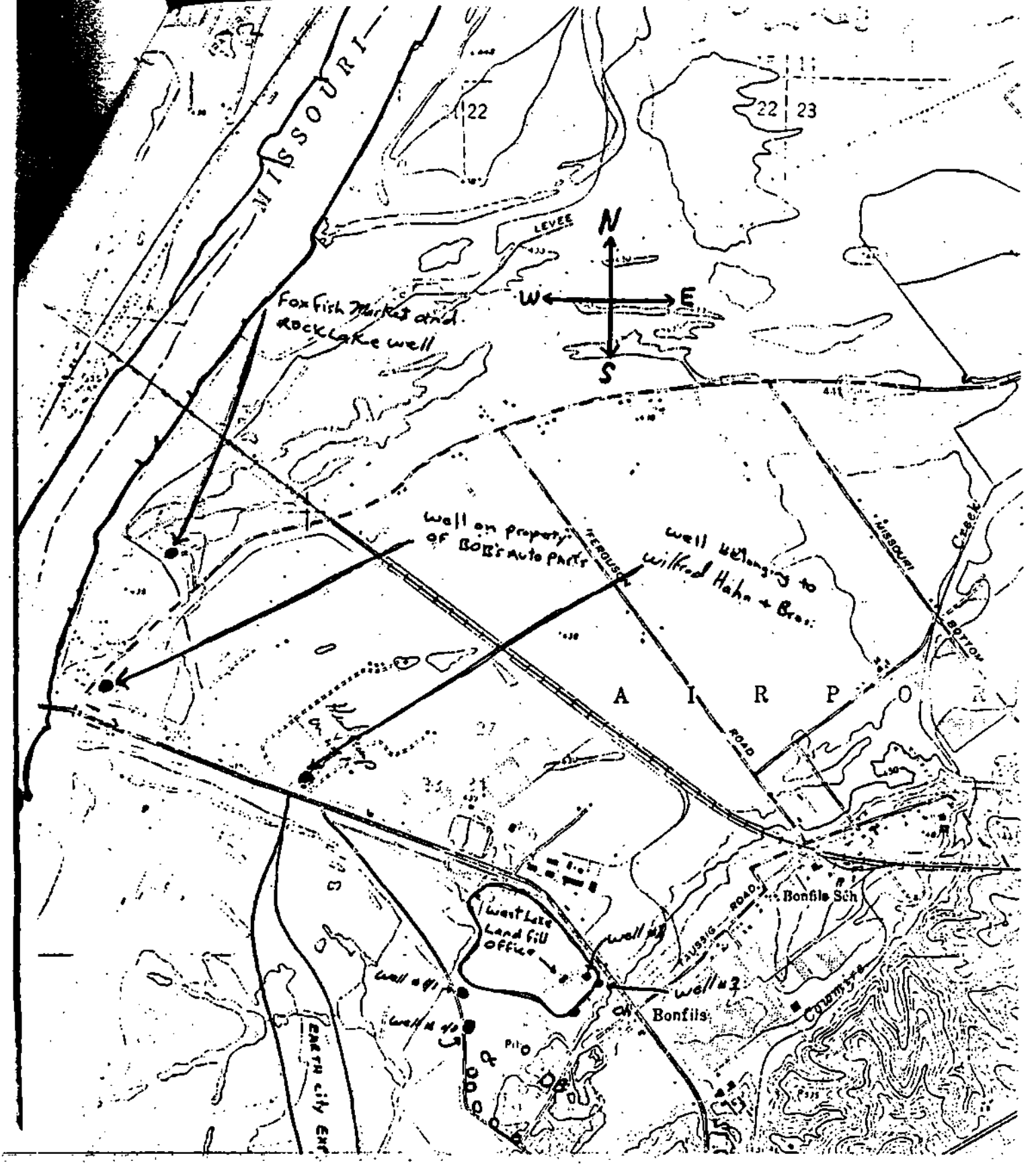
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Fox Fish Market and Rock Lake well
Well on property of Bob's Auto Parts
well belonging to Wilfred Hahn + Bros.
FERGUSON
MISSOURI
CREEK
BOTTOM
A I R P O
ROAD
West Lake Land fill Office
well #3
well #2
well #1
TAUSSIG ROAD
Bonfils Sch
Bonfils
Cemetery
Pilo
DR
EARTH city Exp

OBSERVATIONS (Cont'd)

shallow well and the employees were cautioned not to drink the water from it. The water from the well is primarily used in cleaning auto parts. The following depths were recorded:

WELL	DEPTH OF WATER	DEPTH OF WELL FROM GROUND SURFACE
#41	6.5 feet	60.4 feet
#40	5.9 feet	53.5 feet
Hahn Farm House	8.7 feet	23.9 feet
Fox Fish Market	(could not be measured)	121 feet (cased for 90 feet)*
Bob's Auto Parts	(could not be measured)	Est. 15 - 30 feet (casing unknown)*

* - information supplied by owner or employee at these establishments

The water from the two (2) landfill wells contained a slight amount of silt due to the bailing procedure. The well on the Hahn property contained a large amount of silt and required approximately two (2) hours to filter three (3) gallons. The filter was replaced a total of six (6) times during this procedure. By contrast, the water from the Landfill wells was filtered (3 gallons/well) in slightly less than thirty (30) minutes with only one filter change per sample. In addition, the water collected from the well on the Hahn property emmitted a septic odor, even after the water in the well was replaced three (3) times. The water from this well is not used by the landowners.

The water from the wells at Bob's Auto Parts and the Fox Fish Market was very clear and did not require filtering.

Two (2) wells on the Landfill property (#1 and #3) were dry during the sampling period.

RESULTS

The analytical results of the samples collected are attached to this report.

Prepared by

Mike Lincoln
Environmental Specialist I

October 8, 1980

Approved by

James H. Long, Director
Laboratory Services Program

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REPORT OF SAMPLE ANALYSIS
LANDFILL MONITORING PROJECT

NAME OF FACILITY *West Lake Landfill*

SAMPLES COLLECTED BY *Mike Lincoln* DATE(S) *10-1-80*

NOTE:

SAMPLE DESCRIPTION	*Fox Fish Market Well*	*Shallow Well @ Bob's Auto Parts*
DATE COLLECTED	*10-1-80*	*10-1-80*
SAMPLE NUMBER	*80-7421*	*80-7422*
pH Units	*6.6*	*6.6*
Specific Cond. (umhos/cm @ 25° C)	*950*	*1900*
Milligrams per liter		
BOD	*< 12*	*< 12*
COD	*4.3*	*12.1*
NH_3 as N	*0.37*	*0.23*
NO_3+NO_2 as N	*< 0.05*	*< 0.05*
Total P	*0.21*	*0.43*
Total Sulfide	*< 0.1*	*< 0.1*
TOC	*18.0*	*35.7*
Total Cyanide	*< 0.01*	*< 0.01*
Non-Filterable Residue (SS)	*11*	*38*
Filterable Residue (TDS)	*492*	*918*
Alkalinity as $CaCO_3$	*396*	*580*
Fluoride	*0.42*	*0.22*
Chloride	*7.0*	*112*
Sulfate	*63*	*84*
Hardness as $CaCO_3$ (Ca, Mg, Fe, Zn, Mn)	*394*	*623*
Potassium, *Dissolved*	*3.8*	*10.3*
Sodium, *Dissolved*	*18.4*	*54.5*
Calcium, *Dissolved*	*110*	*187*
Magnesium, *Dissolved*	*29*	*38*
Micrograms per liter		
Cadmium, *Dissolved*	*0.2*	*0.7*
Chromium, *Dissolved*	*< 5*	*< 5*
Copper, *Dissolved*	*4*	*3*
Iron, *Dissolved, mg/l*	*4.18*	*18.6*
Lead, *Dissolved*	*2*	*7*
Manganese, *Dissolved*	*290*	*790*
Mercury, *Dissolved*	*QNS**	*QNS**
Nickel, *Dissolved*	*< 20*	*< 20*
Zinc, *Dissolved, mg/l*	*0.02*	*1.39*
Arsenic, *Dissolved*	*< 5*	*< 5*
Silver, *Dissolved*	*0.2*	*0.3*

**Quantity not sufficient*

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